Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 2 of 15

In the Claims

1. (Canceled)

2. (Currently Amended) The system of claim ~~1~~7, and further comprising a communication

   network among the one or more storage systems and the one or more indexing systems.

3. (Currently Amended) The system of claim ~~1~~7, wherein an indexing system performs the

   tracking step by performing the steps of:

   (A) monitoring a data set access request between an indexing

   system and a storage device system; and

   (B) updating usage information associated with a data set

   corresponding to the monitored data set access request.

4. (Currently Amended) The system of claim ~~1~~7, wherein the usage information in the data

   store is a table of records correlating data sets with data set access request information.

5. (Original)   The system of claim 4, wherein the data set access request information

   correlated with a data set is a request rate associated with the data set.

6. (Original)   The system of claim 4, wherein the data set access request information

   correlated with a data set corresponds to a number of data set access requests for the data

   set.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 3 of 15

7.   (Currently Amended) ~~The system of claim 1,~~A computer-implemented system for

managing content across storage systems, the system comprising:

(a) one or more storage systems containing data sets; and

(b) one or more indexing systems, each indexing system comprising a data store for

storing usage information associated with data sets stored on the one or more storage

systems and a processor for performing the steps of:

    (i)   tracking usage of the data sets contained on the one or more of storage

    devices; and

    (ii)   issuing content management directives with respect to the data sets to alter

    the number of instances of data sets contained on the one or more storage

    devices so as to maximize efficient access to the data sets, wherein an

    indexing system issues content management directives selected from a

    group consisting of copy directives, move directives, and delete directives.

8.   (Currently Amended) The system of claim 7, wherein the indexing system issues a

content management directed selected from the group ~~further~~consisting of copy ~~move~~

directives and delete directives.

9.   (Currently Amended) The system of claim ~~1~~7, wherein each storage system comprises a

storage processor.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 4 of 15

10.   (Original)   The system of claim 9, wherein the storage processor of a storage system

performs the steps comprising of:

        (i)   receiving a content management directive from the one or more indexing

            systems; and

        (ii)   manipulating a data set on the storage system based upon the received

            directive.

11.   (Original)   The system of claim 10, wherein the storage processor performs the

further step comprising of acknowledging processing of the received directive.

12.   (Canceled)

13.   (Currently Amended) ~~The system of claim 12~~A computer-implemented content access

and management messaging system, the system comprising:

        (a)   one or more storage systems containing data sets; and

        (b)   one or more management systems in communication with the one or more storage

            systems, each management system comprising a management processor for

            performing the steps comprising of:

            (i)   delegating data set access requests to the one or more storage systems; and

            (ii)   issuing content management directives to the one or more storage systems

                to alter the number of instances of data sets contained on the one or more

                storage devices so as to maximize efficient access to the data sets based on

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 5 of 15

> tracking data generated by one or more indexing systems that track usage
>
> of the data sets contained on the one or more of storage devices, wherein
>
> the management processor issues content management directives selected
>
> from a group consisting of copy directives, move directives, and delete
>
> directives.

14.   (Currently Amended) The system of claim 13, wherein the management processor issues

content management directives selected from the group further consisting of move copy

directives and delete directives.

15.   (Currently Amended) The system of claim 1213, wherein the management processor

performs the further step comprising of monitoring data set access delegations.

16.   (Currently Amended) The system of claim 1213, wherein each storage system comprises

a storage processor.

17.   (Original)   The system of claim 16, wherein the storage processor performs the step

comprising of receiving a data set access delegation from the one or more management

systems.

18.   (Original)   The system of claim 16, wherein the storage processor performs the steps

comprising of:

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 6 of 15

    (i)   receiving a content management directive from the one or more

           management systems; and

    (ii)   manipulating a data set on the storage system based upon the received

           directive.

19.   (Original)   The system of claim 18, wherein the storage processor performs the

further step comprising of acknowledging processing of the received directive.

20.   (Currently Amended) The system of claim ~~12~~13, and further comprising a

communication network among the one or more storage systems and the one or more

indexing systems.

21.   (Canceled)

22.   (Currently Amended) The method of claim ~~21~~26, wherein the tracking step comprises the

steps of:

    (i)   monitoring a data set access request between an indexing system and a

           storage device system; and

    (ii)   updating usage information associated with a data set corresponding to the

           monitored data set access request.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 7 of 15

23.   (Original)   The method of claim 22, wherein the tracking step further comprises the

step of storing usage information in a table of records correlating data sets with data set

access request information.

24.   (Original)   The method of claim 23, wherein the data set access request information

correlated with a data set is a request rate associated with the data set.

25.   (Original)   The method of claim 23, wherein the data set access request information

correlated with a data set corresponds to a number of data set access requests for the data

set.

26.   (Currently Amended) ~~The method of claim 21~~<u>A computer-implemented method for one</u>

<u>or more indexing systems to manage content across storage systems, the method</u>

<u>comprising the steps of:</u>

    (a)   <u>tracking usage of data sets contained on the one or more storage devices by one or</u>

        <u>more indexing system; and</u>

    (b)   <u>issuing content management directives by the one or more indexing systems with</u>

        <u>respect to the data sets to alter the number of instances of data sets contained on</u>

        <u>the one or more storage devices so as to maximize efficient access to the data sets,</u>

        wherein content management directives issued by an indexing system are selected

        from a group consisting of copy directives<u>, move directives,</u> and delete directives.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 8 of 15

27.   (Original)   The method of claim 26, wherein content management directives issued

by an indexing system are selected from the group ~~further~~ consisting of ~~move~~ <u>copy</u>

directives <u>and delete directives</u>.

28.   (Currently Amended) ~~The method of claim 21, and further comprising the steps of:~~<u>A</u>

<u>computer-implemented method for one or more indexing systems to manage content</u>

<u>across storage systems, the method comprising the steps of:</u>

   (a)   <u>tracking usage of data sets contained on the one or more storage devices by one or</u>

         <u>more indexing system;</u>

   (b)   <u>issuing content management directives by the one or more indexing systems with</u>

         <u>respect to the data sets to alter the number of instances of data sets contained on</u>

         <u>the one or more storage devices so as to maximize efficient access to the data sets;</u>

   (c)   receiving by a storage system a content management directive <u>selected from the</u>

         <u>group consisting of move directives, copy directives and delete directives</u> from

         the one or more indexing systems; and

   (d)   manipulating a data set by the storage system based upon the received directive.

29.   (Original)   The method of claim 28, and comprising the further step of

acknowledging processing of the received directive.

30.   (Canceled)

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 9 of 15

31.   (Currently Amended) ~~The method of claim 30,~~ A computer-implemented content access

andmanagementmessagingmethodforcommunication between one or more storage

systems and one or more management systems, the method comprising the steps of:

    (a)   delegating data set access requests by a management system to one or more

        storage systems; and

    (b)   issuing content management directives by a management system to the one or

        more storage systems to alter the number of instances of data sets contained on

        the one or more storage devices so as to maximize efficient access to the data sets

        based on tracking data generated by one or more indexing systems that track

        usage of the data sets contained on the one or more of storage devices, wherein

        content management directives are selected from a group consisting of copy

        directives, move directives, and delete directives.

32.   (Currently Amended) The method of claim 31, wherein content management directives

are selected from the group ~~further~~ consisting of ~~move~~ copy directives and delete

directives.

33.   (Currently Amended) The method of claim ~~30~~31, and further comprising the step of

monitoring data set access delegations by the one or more management systems.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 10 of 15

34.   (Currently Amended) The method of claim ~~30~~31, and further comprising the step of

receiving a data set access delegation by a storage system from the one or more

management systems.

35.   (Currently Amended) ~~The method of claim 30, and further comprising the steps of:~~A

computer-implemented content access andmanagementmessagingmethodfor

communication between one or more storage systems and one or more management

systems, the method comprising the steps of:

(a)   delegating data set access requests by a management system to one or more

storage systems;

(b)   issuing content management directives by a management system to the one or

more storage systems to alter the number of instances of data sets contained on

the one or more storage devices so as to maximize efficient access to the data sets

based on tracking data generated by one or more indexing systems that track

usage of the data sets contained on the one or more of storage devices;

(c)   receiving a content management directive selected from the group consisting of

copy directives, move directives and delete directives by a storage system from

the one or more management systems; and

(d)   manipulating a data set by the storage system based upon the received directive.

36.   (Original)   The method of claim 35, and further comprising the step of

acknowledging processing of the received directive by the storage system.

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 11 of 15

37.   (Currently Amended) A <u>computer-implemented</u> system for managing content across

storage systems, the system comprising:

(a)   tracking means for tracking usage of data sets contained on the one or more

storage devices by one or more indexing system;

(b)   issuing means for issuing content management directives <u>selected from the group</u>

<u>consisting of copy directives, move directives and delete directives</u> by the one or

more indexing systems with respect to the data sets <u>to alter the number of</u>

<u>instances of data sets contained on the one or more storage devices</u> so as to

maximize efficient access to the data sets;

(c)   receiving means for receiving by a storage system a content management

directive from the one or more indexing systems; and

(d)   manipulating means for manipulating a data set by the storage system based upon

the received directive.

38.   (Currently Amended) A computer-implemented content access and management

messaging system, the system comprising:

(a)   delegating means for delegating data set access requests by a management system

to one or more storage systems;

(b)   issuing means for issuing content management directives <u>selected from the group</u>

<u>consisting of move directives, copy directives and delete directives</u> by a

management system <u>based on tracking data generated by one or more indexing</u>

Application No. 09/579,961
Response to Office Action of June 30, 2004
ATTORNEY DOCKET NO. C0010.P002U1
Page 12 of 15

systems that track usage of the data sets contained on the one or more of storage

devices to the one or more storage systems to alter the number of instances of data

sets contained on the one or more storage devices so as to maximize efficient

access to the data sets;

(c)   receiving means for receiving a content management directive by a storage

system from the one or more management systems; and

(d)   manipulating means for manipulating a data set by the storage system based upon

the received directive.